

ms 7

- 55214 55215 55216 55217 55218 55219 55220 55221 55222 55223 55224 55225 55226 55227 55228 55229 55230 55231 55232 55233 55234 55235 55236 55237 55238 55239 55240 55241 55242 55243 55244 55245 55246 55247 55248 55249 55250 55251 55252 55253 55254 55255 55256 55257 55258 55259 55260 55261 55262 55263 55264 55265 55266 55267 55268 55269 55270 55271 55272 55273 55274 55275 55276 55277 55278 55279 55280 55281 55282 55283 55284 55285 55286 55287 55288 55289 55290 55291 55292 55293 55294 55295 55296 55297 55298 55299 55300 55301 55302 55303 55304 55305 55306 55307 55308 55309 55310 55311 55312 55313 55314 55315 55316 55317 55318 55319 55320 55321 55322 55323 55324 55325 55326 55327 55328 55329 55330 55331 55332 55333 55334 55335 55336 55337 55338 55339 55340 55341 55342 55343 55344 55345 55346 55347 55348 55349 55350 55351 55352 55353 55354 55355 55356 55357 55358 55359 55360 55361 55362 55363 55364 55365 55366 55367 55368 55369 55370 55371 55372 55373 55374 55375 55376 55377 55378 55379 55380 55381 55382 55383 55384 55385 55386 55387 55388 55389 55390 55391 55392 55393 55394 55395 55396 55397 55398 55399 55400 55401 55402 55403 55404 55405 55406 55407 55408 55409 55410 55411 55412 55413 55414 55415 55416 55417 55418 55419 55420 55421 55422 55423 55424 55425 55426 55427 55428 55429 55430 55431 55432 55433 55434 55435 55436 55437 55438 55439 55440 55441 55442 55443 55444 55445 55446 55447 55448 55449 55450 55451 55452 55453 55454 55455 55456 55457 55458 55459 55460 55461 55462 55463 55464 55465 55466 55467 55468 55469 55470 55471 55472 55473 55474 55475 55476 55477 55478 55479 55480 55481 55482 55483 55484 55485 55486 55487 55488 55489 55490 55491 55492 55493 55494 55495 55496 55497 55498 55499 55500 55501 55502 55503 55504 55505 55506 55507 55508 55509 55510 55511 55512 55513 55514 55515 55516 55517 55518 55519 55520 55521 55522 55523 55524 55525 55526 55527 55528 55529 55530 55531 55532 55533 55534 55535 55536 55537 55538 55539 55540 55541 55542 55543 55544 55545 55546 55547 55548 55549 55550 55551 55552 55553 55554 55555 55556 55557 55558 55559 55560 55561 55562 55563 55564 55565 55566 55567 55568 55569 55570 55571 55572 55573 55574 55575 55576 55577 55578 55579 55580 55581 55582 55583 55584 55585 55586 55587 55588 55589 55590 55591 55592 55593 55594 55595 55596 55597 55598 55599 55600 55601 55602 55603 55604 55605 55606 55607 55608 55609 55610 55611 55612 55613 55614 55615 55616 55617 55618 55619 55620 55621 55622 55623 55624 55625 55626 55627 55628 55629 55630 55631 55632 55633 55634 55635 55636 55637 55638 55639 55640 55641 55642 55643 55644 55645 55646 55647 55648 55649 55650 55651 55652 55653 55654 55655 55656 55657 55658 55659 55660 55661 55662 55663 55664 55665 55666 55667 55668 55669 55670 55671 55672 55673 55674 55675 55676 55677 55678 55679 55680 55681 55682 55683 55684 55685 55686 55687 55688 55689 55690 55691 55692 55693 55694 55695 55696 55697 55698 55699 55700 55701 55702 55703 55704 55705 55706 55707 55708 55709 55710 55711 55712 55713 55714 55715 55716 55717 55718 55719 55720 55721 55722 55723 55724 55725 55726 55727 55728 55729 55730 55731 55732 55733 55734 55735 55736 55737 55738 55739 55740 55741 55742 55743 55744 55745 55746 55747 55748 55749 55750 55751 55752 55753 55754 55755 55756 55757 55758 55759 55760 55761 55762 55763 55764 55765 55766 55767 55768 55769 55770 55771 55772 55773 55774 55775 55776 55777 55778 55779 55780 55781 55782 55783 55784 55785 55786 55787 55788 55789 55790 55791 55792 55793 55794 55795 55796 55797 55798 55799 55800 55801 55802 55803 55804 55805 55806 55807 55808 55809 55810 55811 55812 55813 55814 55815 55816 55817 55818 55819 55820 55821 55822 55823 55824 55825 55826 55827 55828 55829 55830 55831 55832 55833 55834 55835 55836 55837 55838 55839 55840 55841 55842 55843 55844 55845 55846 55847 55848 55849 55850 55851 55852 55853 55854 55855 55856 55857 55858 55859 55860 55861 55862 55863 55864 55865 55866 55867 55868 55869 55870 55871 55872 55873 55874 55875 55876 55877 55878 55879 55880 55881 55882 55883 55884 55885 55886 55887 55888 55889 55890 55891 55892 55893 55894 55895

6. The nucleic acid molecule of claim 4 wherein the additional polypeptide has adjuvant activity.

7. The nucleic acid molecule according to claim 1, operatively linked to one or more expression control sequences.

5 8. A vaccine comprising at least one first nucleic acid according to claim 1, and a vaccine vector wherein each first nucleic acid is expressed as a polypeptide, the vaccine optionally comprising a second nucleic acid encoding an additional polypeptide which enhances the immune response to
10 the polypeptide expressed by said first nucleic acid.

9. The vaccine of claim 8 wherein the second nucleic acid encodes an additional Chlamydia polypeptide.

10. A pharmaceutical composition comprising a nucleic acid according to claim 1 and a pharmaceutically acceptable
15 carrier.

11. A pharmaceutical composition comprising a vaccine according to claim 8 and a pharmaceutically acceptable carrier.

12. A unicellular host transformed with the nucleic acid molecule of claim 7.

20 13. A nucleic acid probe of 5 to 100 nucleotides which hybridizes under stringent conditions to the nucleic acid molecule of SEQ ID No: 1, or to a homolog or complementary or anti-sense sequence of said nucleic acid molecule.

14. A primer of 10 to 40 nucleotides which hybridizes
25 under stringent conditions to the nucleic acid molecules of SEQ ID No: 1, or to a homolog or complementary or anti-sense sequence of said nucleic acid molecule.

15. A polypeptide comprising an amino acid sequence selected from any of:

- (a) SEQ ID No: 2;
(b) an immunogenic fragment comprising at least 12 consecutive amino acids from a polypeptide of (a); and
(c) a polypeptide of (a) or (b) which has been
5 modified to improve its immunogenicity, wherein said modified polypeptide is at least 75% identical in amino acid sequence to the corresponding polypeptide of (a) or (b).

16. A fusion polypeptide comprising the polypeptide of claim 15 and an additional polypeptide.

10 17. The fusion polypeptide of claim 16 wherein the additional polypeptide is a heterologous signal peptide.

18. The fusion protein of claim 16 wherein the additional polypeptide has adjuvant activity.

19. A method for producing a polypeptide of claim 15,
15 comprising the step of culturing a unicellular host according to claim 12.

20. An antibody against the polypeptide of claim 15.

21. A vaccine comprising at least one first polypeptide according to claim 15 and a pharmaceutically acceptable
20 carrier, optionally comprising a second polypeptide which enhances the immune response to the first polypeptide.

22. The vaccine of claim 21 wherein the second polypeptide comprises an additional Chlamydia polypeptide.

23. A pharmaceutical composition comprising a polypeptide
25 according to claim 15 and a pharmaceutically acceptable carrier.

24. A pharmaceutical composition comprising a vaccine according to claim 21 and a pharmaceutically acceptable carrier.

25. A pharmaceutical composition comprising an antibody according to claim 20 and a pharmaceutically acceptable carrier.
26. A method for preventing or treating Chlamydia infection using the nucleic acid of claim 1.
27. A method for preventing or treating Chlamydia infection using the vaccine of claim 8.
28. A method for preventing or treating Chlamydia infection using the pharmaceutical composition of claim 10.
29. A method for preventing or treating Chlamydia infection using the polypeptide of claim 15.
30. A method for preventing or treating Chlamydia infection using the antibody of claim 20.
31. A method of detecting Chlamydia infection comprising the step of assaying a body fluid of a mammal to be tested with the nucleic acid of claim 15.
32. A method of detecting Chlamydia infection comprising the step of assaying a body fluid of a mammal to be tested with the polypeptide of claim 15.
33. A method of detecting Chlamydia infection comprising the step of assaying a body fluid of a mammal to be tested with the antibody of claim 20.
34. A method for identifying the polypeptide of claim 15 which induces an immune response effective to prevent or lessen the severity of Chlamydia infection in a mammal previously immunized with polypeptide, comprising the steps of:
- (a) immunizing a mouse with the polypeptide; and
 - (b) inoculating the immunized mouse with Chlamydia;

35. Expression plasmid pCAmg002.

- ~~er membrane~~

add B_4

[illegible]